



Analysis Students' Environmental Care Attitudes through the Implementation of an Environmental Duty Program from the Perspective of Education for Sustainable Development (ESD)

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Abstract

This study aimed to analyze the environmental care attitudes of eighth-grade students at MTs Al-Huda Pekanbaru through the implementation of an environmental duty program as a form of Education for Sustainable Development (ESD), as well as to identify the obstacles encountered in its implementation. This research employed a descriptive approach using a survey method. Data were collected through observation, questionnaires, interviews, and documentation. The data were analyzed descriptively in the form of percentages, while the research instruments were tested for validity and reliability. The instruments were based on two main indicators: efforts to prevent environmental damage in the surrounding area and efforts to repair existing environmental damage. These indicators were further elaborated into seven aspects, namely environmental maintenance, reduction of plastic use, waste management based on type, reduction of carbon emissions, energy saving, tree planting, and the utilization of used materials. From an ESD perspective, these aspects reflect the development of students' values, responsibility, and sustainable behavior toward the environment. The results showed that the average percentage of observation was 61% and the questionnaire was 72.6%, both categorized as caring. These findings indicate that the environmental duty program contributes to fostering students' environmental awareness as part of sustainable education practices in schools.

Keywords: Environmental care attitude; Education for Sustainable Development (ESD); environmental duty program.

Article History:

Received

10/02/2026

Revised

22/03/2026

Accepted

15/03/2026

Published

16/03/2026

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Introduction

Environmental care attitude refers to the attitudes and actions possessed by an individual in efforts to improve the condition of the surrounding natural environment. Schools can serve as a means of integrating environmental education into classroom learning ([Narut and Nardi, 2019](#)). [Yanti and Yusliani \(2020\)](#) explain that environmental education greatly influences students' attitudes in the learning process. To achieve this, teachers are required to have effective teaching skills. Humans need education in order to become intelligent individuals, possess good morals, be independent, and be useful to society and the nation.

Environmental care attitude in daily social life can be understood as a person's response to the environment by not damaging the natural surroundings; with such an attitude, a clean and pleasant environment can be created. In the current era of globalization, many forms of environmental damage occur, such as forest and land fires, floods, landslides, illegal logging, and others, even though the environment itself greatly affects human life. When the environment is damaged, human activities will be disrupted. Therefore, environmental care is needed from every individual, especially students. According to [Arofah and Pujilestari \(2020\)](#), environmental care attitudes in education are still relatively low, as reflected in the fact that some students still litter, and during the learning process inorganic waste is still found scattered in classrooms, along with graffiti on chairs and classroom walls. [Desfandi \(2015\)](#) states that this habit arises because students' environmental care attitudes are still low. To foster environmental care attitudes in society, education must begin when students are at school. Schools are able to teach students to recognize the impact of human attitudes and behaviours on the earth within the cycle of life.



Students' concern for the environment is essential in creating a comfortable atmosphere, so that the teaching and learning process can take place more conductively. At present, environmental management is needed to promote public health, especially among younger generations such as school students, so that it can be integrated into school subjects and directly monitored by teachers. By applying environmental care attitudes in schools, students, teachers, and other school members will develop awareness and responsibility toward environmental preservation. The environmental care attitudes possessed by students, teachers, and school communities are the result of a learning process that can enhance concern for the sustainability of the natural environment. [Warni et al., \(2022\)](#) explain that environmental care is a human behavior or change that is consciously directed toward the environment, grounded in a sense of responsibility, because environmental damage is caused by human mentality itself. A person with low environmental knowledge will usually have a poor environmental care attitude. This is because the lower students' knowledge about the environment, the lower their level of environmental awareness tends to be. Thus, it can be understood that environmental knowledge can influence a person's awareness. One way to change a person's mindset as an environmental destroyer is by developing environmental awareness. One way to change a person's mindset as an environmental destroyer is by developing environmental awareness. According to [Saputri et al., \(2018\)](#), a person who is aware of the environment will cultivate and apply an environmental care attitude. Meanwhile, [Susilawati et al., \(2021\)](#) argue that caring for the environment is not only about having environmental knowledge, but also about linking it to attitudes, behavior, and willingness to take action in addressing environmental problems.

Based on the study by [Pusparani et al., \(2021\)](#), environmental care in schools can also be measured through indicators divided into two categories; efforts to prevent damage to the surrounding natural environment and efforts to repair environmental damage that has already occurred. The indicators of environmental care attitude in preventing environmental damage include environmental maintenance, reduction of plastic use, waste management based on its type, reduction of carbon emissions, and energy conservation. Meanwhile, the indicators of environmental care attitude in repairing existing environmental damage include tree planting and the utilization of used materials.

One of the Islamic junior high schools in Pekanbaru City, MTs Al-Huda Pekanbaru, has sought to improve students' environmental care attitudes by establishing a program called the environmental duty program. This program is designed to create a school that is environmentally aware and culture based. It is carried out every day for 15 to 20 minutes before lessons begin. All students are divided into groups, and each group is assigned a specific area to clean as designated by the teacher. This activity aims to habituate students to cleaning their environment, train them to care for it properly, and teach them about waste management so that it can help reduce the amount of waste disposed of in landfills. Through this environmental duty program, students are expected to develop awareness of the importance of the surrounding environment, a sense of responsibility for maintaining it, and the habit of keeping it clean. The activities in this program include sweeping the school yard, watering plants, picking up litter, disposing of waste properly, and cleaning the school drainage channels. Although the school has made efforts to encourage students to care for the environment, some students still do not comply. At times, there are still students who litter or fail to dispose of waste according to its type.

Previous studies conducted by [Martini \(2019\)](#) in line with the research of [Munawar et al., \(2019\)](#) examined the relationship between environmental knowledge and students' environmental care or pro-environmental behavior in Adiwiyata schools. The findings showed that the programs implemented in Adiwiyata schools had a positive effect on changing students' pro-environmental behavior. Meanwhile, research on the relationship between environmental knowledge and students' attitudes toward cleanliness management in schools conducted by [Muliana et al., \(2018\)](#), showed that there was no relationship between knowledge and students' cleanliness management in the school environment.



Based on the initial observation data collected when the researcher conducted the School Field Introduction Program for approximately two months at MTs Al-Huda Pekanbaru, it was found that some students still showed a lack of concern for the school environment. For example, during the environmental duty activities, many students wandered around or merely sat idly, and some classrooms were still dirty. The principal and teachers at MTs Al-Huda Pekanbaru had made various efforts to instill environmental care attitudes in students; however, some students were still not fully aware of the importance of maintaining the environment. These problems indicate that students' responses and attitudes have not yet been well developed, even though the school has already implemented the environmental duty program.

From the perspective of Education for Sustainable Development (ESD), education is not only oriented toward the mastery of knowledge, but also toward the development of students' values, attitudes, responsibility, and concrete actions in addressing environmental, social, and economic issues in a sustainable manner. The environmental duty program at school can be understood as a form of ESD implementation because it encourages students to develop habits of maintaining cleanliness, managing waste, reducing plastic use, saving energy, and fostering a sense of responsibility for the sustainability of the school environment. Therefore, the analysis of environmental care attitudes in this study is not only relevant within the context of environmental education but is also important to be examined as part of the school's effort to instill the values of sustainable development.

Based on the background described above, the author is interested in conducting a study entitled "Analysis of Students' Environmental Care Attitudes through the Implementation of an Environmental Duty Program from the Perspective of Education for Sustainable Development (ESD)."

Method

This study was conducted from November 2023 to February 2024. It employed a descriptive design using a survey method. The population consisted of all eighth-grade students of MTs Al-Huda Pekanbaru, totaling 147 students. The sample for questionnaire data collection comprised 89 students, while for the observation, the researcher selected 30 of the 89 students, represented by 10 students each from classes VIII A, VIII B, and VIII E. The sampling technique used was simple random sampling. The sample size was determined based on the formula proposed by [Suharsimi Arikunto., \(2016\)](#), which states that if the population is fewer than 100 individuals, the entire population should be taken as the sample; however, if the population exceeds 100 individuals, 10%–15% or 20%–25% of the total population may be selected. Thus, the number of students selected as the sample for questionnaire distribution was 89 students (60%), and the number selected for observation was 30 students (20%), which were considered representative of the total population of 147 eighth-grade students at MTs Al-Huda Pekanbaru.

Data were collected through observation, questionnaires, interviews, and documentation. Data analysis was conducted through data processing and presentation using percentage calculations. The prerequisite tests for data analysis included validity and reliability tests using SPSS. The research samples for observation and questionnaire distribution are presented in Table 1.

Table 1. Research Sample of Grade VIII Students at MTs Al-Huda Pekanbaru

No	Sample Class	Questionnaire	Observation
1	VIII A	29	10
2	VIII B	30	10
3	VIII E	30	10
Total		89	30



The data in this study were obtained through observation sheets and respondent questionnaires consisting of 2 indicators and 7 sub-indicators, with 26 positive and negative statement items for the questionnaire instrument and 7 statement items for the observation sheet. The blueprint of the observation sheet and questionnaire on students' environmental care attitudes is presented in the following tables.

Table 2. Blueprint of the Observation Sheet on Environmental Care Attitudes

Indicator	Sub-indicator	Item Number	Number of Items
Efforts to prevent environmental damage in the surrounding natural environment	Environmental maintenance	1	1
	Reduction of plastic use	2	1
	Waste management based on type	3	1
	Reduction of carbon emissions	4	1
	Energy saving	5	1
Efforts to repair existing environmental damage	Tree planting	6	1
	Utilization of used materials	7	1
Total		7	7

Source: Pusparani & Miranto (2021).

Table 3. Blueprint of the Questionnaire on Environmental Care Attitudes of Grade VIII Students at MTs Al-Huda Pekanbaru

Indicator	Sub-indicator	Positive Items	Negative Items	Number of Items
Efforts to prevent environmental damage in the surrounding natural environment	Environmental maintenance	1, 2, 3	4, 5	5
	Reduction of plastic use	6, 7	8, 9	4
	Waste management based on type	10, 11	12, 13	4
	Reduction of carbon emissions	14	15	2
	Energy saving	16, 17, 18	19, 20	5
Efforts to repair existing environmental damage	Tree planting	21	22, 23	3
	Utilization of used materials	24	25, 26	3
Total		13	13	26

Source: Pusparani & Miranto (2021)

In addition, interview guidelines were used to obtain secondary data and gather accurate supporting information from informants. A four-point Likert scale was used as a guideline for answering the questionnaire items, as presented in Table 4.

Table 4. Scoring Guidelines for the Questionnaire on Students' Environmental Care Attitudes

Response Option	Favourable (+)	Unfavourable (-)
Strongly Agree (SA)	4	1
Agree (A)	3	2
Disagree (D)	2	3
Strongly Disagree (SD)	1	4

The questionnaire data were processed and analyzed descriptively. The indicator for calculating the score of Environmental Care Attitude was determined using the following formula:

$$P = (F / N) \times 100\%$$

Where:

P = percentage score

F = frequency of the score obtained

N = maximum possible score



The criteria for determining environmental care attitudes are shown in Table 5.

Table 5. Criteria of Environmental Care Attitude

No	Percentage	Category
1	0%–20%	Not Caring
2	21%–40%	Less Caring
3	41%–60%	Moderately Caring
4	61%–80%	Caring
5	81%–100%	Highly Caring

Source: Modified from Riduwan (2015).

Research Results and Discussion

Research Results

The data obtained from the observation and questionnaire distribution on environmental care attitudes through the implementation of the environmental duty program among the sample of Grade VIII students at MTs Al-Huda Pekanbaru are presented in Table 6 below.

Table 6. Recapitulation of Observation Results of Students' Activities and Questionnaire Results on the Environmental Care Attitudes of Grade VIII Students at MTs Al-Huda Pekanbaru

No.	Indicator	Observation (%)	Category	Questionnaire (%)	Category
1	Environmental Maintenance	65%	Caring	78%	Caring
2	Reduction of Plastic Use	37%	Less Caring	70%	Caring
3	Waste Management Based on Type	61%	Caring	71%	Caring
4	Reduction of Carbon Emissions	55%	Moderately Caring	69%	Caring
5	Energy Saving	74%	Caring	79%	Caring
6	Tree Planting	73%	Caring	71%	Caring
7	Utilization of Used Materials	63%	Caring	70%	Caring
Average		61%	Caring	72.6%	Caring

Discussion

Based on Table 6 above, it can be seen that the study on the analysis of environmental care attitudes of Grade VIII students at MTs Al-Huda Pekanbaru through the implementation of the environmental duty program used seven indicators, namely environmental maintenance, reduction of plastic use, waste management based on type, reduction of carbon emissions, energy saving, tree planting, and the utilization of used materials. The results showed that the average percentage of students' observed activities was 61%, while the questionnaire result measuring students' environmental care attitudes was 72.6%. These findings indicate that Grade VIII students at MTs Al-Huda Pekanbaru fall into the category of being environmentally caring. A detailed explanation of the environmental care attitudes of Grade VIII students at MTs Al-Huda Pekanbaru through the implementation of the environmental duty program for each indicator is presented as follows:.

Environmental Maintenance

Based on the results of the study on Indicator 1, namely environmental maintenance, the observation results showed an average percentage of 65%, while the questionnaire results showed an average percentage of 78%. It can be concluded that the students care about their environment. During



the observation at MTs Al-Huda Pekanbaru, the observer found that only a few students were indifferent to and neglected the condition of the school environment. From the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, it was explained that most students had begun to develop awareness of maintaining environmental sustainability. This can be seen from the school's activities, which consistently encourage students to care for their environment, such as the environmental duty program that has been implemented since 2019 until the present. In addition to relying on the environmental duty program, the school also organizes other environmental maintenance activities, including classroom cleaning duties and community service activities.

These community service activities are held once a week and twice a month. The activities include cleaning the school environment and the mosque area located within the school compound. Meanwhile, the environmental duty program is conducted after the first and second breaks, with different classes assigned each day. If a class fails to carry out its duty without a clear reason, it will receive a sanction in the form of a set of cleaning equipment, such as brooms, mops, trash bins, and other cleaning tools. In terms of facilities and infrastructure supporting the implementation of the program, these have been provided by the school and are managed by the vice principal for facilities and infrastructure. The vice principal explained that the facilities are already available: the school has a final waste disposal area, and each classroom is equipped with trash bins, brooms, dustpans, and mops. For the environmental duty program, approximately five stick brooms and five dustpans have also been provided, and each area of the school environment is equipped with waste bins, such as bins for organic and inorganic waste.

The vice principal for facilities and infrastructure also explained that the cleaning equipment at MTs Al-Huda is in proper usable condition. If any facilities or cleaning tools are no longer suitable for use, the school will allocate funds to purchase new ones. The implementation of these activities has certainly brought positive impacts on the students, especially the environmental duty program. The supervisor of the environmental duty program and the principal of MTs Al-Huda Pekanbaru explained that the implementation of this program has made students more concerned about their environment. Before the environmental duty program was implemented, many students were often found littering food waste from the school canteen. However, after the program was introduced, visible changes began to appear, as students started disposing of their waste in the trash bins that had been provided. If students are caught littering, their names will be recorded in the environmental duty program evaluation book. According to [Hastuti et al.,\(2015\)](#), maintaining and preserving the surrounding environment is essential in order to keep it clean, comfortable, and healthy. Several ways to preserve and care for the environment include always disposing of waste in the proper place, not burning waste around the school, carrying out activities to clean waste that clogs drainage channels, and maintaining or caring for plants that have been planted.

In an interview session, the principal stated that the students responded enthusiastically to environmental maintenance activities, such as cleaning the surroundings through classroom cleaning duties, community service, and especially the environmental duty program, which encourages students to become more concerned about their environment. However, there are always obstacles and challenges in the implementation of this environmental duty program, particularly the ineffective supervision of students during the duty activities in the school environment. The students are supervised by subject teachers who are teaching during the same period as the environmental duty activities, while the number of students being supervised exceeds 20, making the supervision in the school environment less effective. Nevertheless, these obstacles do not reduce the students' environmental care attitudes, although female students tend to show greater concern for the environment than male students.

The results of the study indicate that, in maintaining the school environment, the students of MTs Al-Huda Pekanbaru fall into the category of being environmentally caring toward their school



surroundings. Although there are inhibiting factors in the implementation of school environmental cleanliness, the program has still been able to foster students who care about their school environment. This is evident from the students' attitudes observed on a daily basis, as they do not feel burdened when carrying out activities related to school cleanliness and environmental maintenance, especially the environmental duty program.

Reduction of Plastic Use

Based on the results of the study on Indicator 2, namely the reduction of plastic use, the observation results showed an average percentage of 37%, while the questionnaire results showed an average percentage of 70%. From the average questionnaire result, it can be concluded that the students care about their environment; however, when observations were conducted on several students, the average result indicated that the students were less caring toward their environment. Based on the observations made during break time, the sampled students had already begun reducing plastic use. They brought their own lunch boxes from home and used their own tumblers or drinking bottles. However, the reason the observation results did not reach the "caring" category was the presence of plastic waste in the school canteen. The canteen at MTs Al-Huda Pekanbaru still uses a considerable amount of plastic for food packaging.

Based on the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, information was obtained that the school had already appealed to and encouraged students to bring their own food containers and tumblers to school, and this appeal to reduce plastic waste had also been conveyed to the canteen management. According to [Arif Zulkifli \(2014\)](#), some food items are still packaged in plastic, even though plastic waste requires approximately 50–80 years to decompose. The long decomposition process of plastic waste can lead to environmental damage. This is in line with the indicator of reducing plastic waste so that it does not have a negative impact on the school environment. The results of the study show that students' efforts to reduce plastic waste have been progressing well and fall into the caring category. However, the school canteen has not yet fully implemented plastic use reduction, which still encourages students to use plastic.

Waste Management Based on Type

Based on the results of the study on Indicator 3, namely waste management based on type, the observation results showed an average percentage of 61%, while the questionnaire results showed an average percentage of 71%. It can be concluded that the students care about their environment. During the observation at MTs Al-Huda Pekanbaru, the observer found that only a few students disposed of waste in the same bin without paying attention to whether the waste should be placed in the organic or inorganic waste container. From the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, it was found that the school had already provided waste bins in every corner of the school according to the types of waste generated, such as organic and inorganic waste bins. However, there were still a few students who disposed of waste in bins that were not appropriate for the type of waste.

The supervisor of the environmental duty program also explained that one of the school's waste management efforts was to turn organic waste into fertilizer for the plants in the school environment of MTs Al-Huda Pekanbaru. In this waste management activity, students were also enthusiastic about helping the science teacher produce fertilizer and spread the processed fertilizer made from such waste throughout the school environment. [Baddarudin et al \(2017\)](#) explains that waste processing techniques include composting, which is a method of processing organic waste by utilizing bacterial activity to convert waste into compost. Another method is waste burning, which can be carried out in a specific place, such as an open field far from daily activities so as not to cause disturbance. However, burning is difficult to control when there are strong winds, as waste residue, ash, dust, and smoke may spread



to surrounding areas and eventually cause disturbance. Furthermore, recycling is one of the waste processing techniques involving the separation of economically valuable materials such as paper, plastic, rubber, and others from waste, which are then processed so that they can be reused either in the same or in a different form. Lastly, reuse is a waste processing technique that is almost similar to recycling, but the difference is that in reuse, items are directly used again without prior processing. The results of the study indicate that waste management based on type falls into the caring category.

Reduction of Carbon Emissions

Based on the results of the study on Indicator 4, namely the reduction of carbon emissions, the observation results showed an average percentage of 55%, while the questionnaire results showed an average percentage of 69%. It can be concluded that the students care about their environment in order to avoid the impacts of carbon emissions. From the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, it was explained that one of the school's efforts to reduce the impact of carbon emissions is by prohibiting students from using private vehicles and instead encouraging them to use public transportation to school. This is in line with the indicator of reducing carbon emissions. The results of the study show that the students of MTs Al-Huda Pekanbaru have shown concern for the school environment by following the rules recommended by the school.

Energy Saving

Based on the results of the study on Indicator 5, namely energy saving, the observation results showed an average percentage of 74%, while the questionnaire results showed an average percentage of 79%. During the observation at MTs Al-Huda Pekanbaru, it was found that only a few students were indifferent and ignored classroom conditions by leaving the lights on and the fans running, whereas most students had already shown concern by checking the condition of the lights and fans before leaving the classroom. From the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, information was obtained that, in order to save energy, the school applies a classroom lighting system and does not use curtains, while the ventilation is also designed in large sizes. Furthermore, to save energy, the fans used in the classrooms are large in size so that fewer fans are needed in each classroom, while still operating at relatively low wattage. The findings on this indicator fall into the caring category.

Tree Planting

Based on the results of the study on Indicator 6, namely tree planting, the observation results showed an average percentage of 73%, while the questionnaire results showed an average percentage of 71%. By participating in tree-planting activities, it can be concluded that the students care about their environment. From the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, it was explained that tree-planting activities are carried out once a year in collaboration with the Environmental Agency and STIE Campus. The students were very enthusiastic, bringing various types of trees to school and showing great spirit in participating in the tree-planting activities organized by the school. In addition to this annual tree-planting activity, at certain times the school also encourages students to bring plants from home in collaboration with science teachers. The types of trees planted include medicinal plants, fruit trees, shade plants, and ornamental plants. According to the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, the number of trees available in the school area is still insufficient if measured as an effort to make the environment look greener and more beautiful. Based on the findings, the students of MTs Al-Huda Pekanbaru already fall into the caring category on the tree-planting indicator.



Utilization of Used Materials

Based on the results of the study on Indicator 7, namely the utilization of used materials, the observation results showed an average percentage of 63%, while the questionnaire results showed an average percentage of 70%. It can be concluded that the students care about their environment. During the observation at MTs Al-Huda Pekanbaru, it was found that students had produced many items from used materials, such as clothes made from newspapers and plastic, bags made from bottle caps, table mats made from fabric scraps, wallets made from used plastic, and used bottles and hoses utilized as teaching media in science lessons. From the researcher's interview with the supervisor of the environmental duty program at MTs Al-Huda Pekanbaru, information was obtained that every Monday morning ceremony, the school always encourages students to save used materials such as sachet drink packaging, which are then collected and turned into products. In one semester, this usually results in two products being created. Based on the results of the study on the indicator of the utilization of used materials, the students of MTs Al-Huda Pekanbaru are already included in the caring category, as they have been able to produce many products from used materials.

Conclusion

Based on the results of the study, it can be concluded that the analysis of the environmental care attitudes of Grade VIII students at MTs Al-Huda Pekanbaru through the implementation of the environmental duty program falls into the category of being caring toward the environment. However, there are obstacles in the implementation of the environmental duty program, particularly the ineffective supervision of students while carrying out duty activities in the school environment, since the only personnel assigned to supervise these activities are the teachers teaching during the same period as the environmental duty program.

Reference

- Arif Zulkifli. (2014). *Pengelolaan Limbah berkelanjutan* (G. Ilmu (ed.); 1st ed.). 2014. <https://opac.perpusnas.go.id/DetailOpac.aspx?id=1154184>
- Arofah, S. M., & Pujilestari, Y. (2020). Hubungan Pengetahuan Lingkungan Dengan Sikap Peduli Lingkungan Pada Peserta Didik. *Prosiding Seminar Nasional*, 1(1), 97–110. <http://openjournal.unpam.ac.id/index.php/gnp/article/view/11263>
- Baddarudin Syaifuddin Yana. (2017). 493-918-1-Sm (1). *Jurnal Pengolahan Limbah Plastik Sebagai Upaya Pencemaran Lingkungan Melalui Tranformasi Yang Memiliki Tambah Ekonomi*, 2(4), 157–164.
- Desfandi, M. (2015). Mewujudkan Masyarakat Berkarakter Peduli Lingkungan Melalui Program Adiwiyata. *SOSIO DIDAKTIKA: Social Science Education Journal*, 2(1), 31–37. <https://doi.org/10.15408/sd.v2i1.1661>
- Dr.Riduwan. (2015). *Dasar-dasar Statistika* (Alfabeta (ed.); 7th ed.). 2015. <https://opac-library.unhas.ac.id/opac/detail-opac?id=15118>
- Hastuti, K. P., Muranti, H., & Normelani, E. (2015). Sikap Siswa Terhadap Kepedulian Lingkungan Di SMPN 3 Banjarmasin Tahun Ajaran 2014/2015. *Jurnal Pendidikan Geografi*, 4(48), 56–65.
- Martini, M. (2019). Hubungan antara pengetahuan lingkungan dengan perilaku prolingkungan sekolah adiwiyata (Studi Kasus SDN 21 Taluak Kab. Agam). *Rang Teknik Journal*, 2(1), 71–78. <https://doi.org/10.31869/rtj.v2i1.1072>
- Muliana, R., Hamama, S. F., & Zamzami, Z. (2018). Hubungan Pengetahuan Lingkungan Terhadap Sikap Siswa pada Pengelolaan Kebersihan di Sekolah. *Jurnal Dedikasi Pendidikan*, 2(1), 8–13.



- Munawar, S., Heryanti, E., & Miarsyah, M. (2019). Hubungan Pengetahuan Lingkungan Hidup Dengan Kesadaran Lingkungan Pada Siswa Sekolah Adiwiyata. *LENSA (Lentera Sains): Jurnal Pendidikan IPA*, 9(1), 22–29. <https://doi.org/10.24929/lensa.v1i1.58>
- Narut, Y. F., & Nardi, M. (2019). Analisis Sikap Peduli Lingkungan Pada Siswa Kelas VI Sekolah Dasar di Kota Ruteng. *Scholaria: Jurnal Pendidikan Dan Kebudayaan*, 9(3), 259–266. <https://doi.org/10.24246/j.js.2019.v9.i3.p259-266>
- Pusparani, D., & Miranto, S. (2021). Hubungan Konsep Diri dan Pengetahuan Lingkungan dengan Sikap Peduli Lingkungan Peserta Didik di SMA. *EduBiologia: Biological Science and Education Journal*, 1(2), 134. <https://doi.org/10.30998/edubiologia.v1i2.9956>
- Saputri, O. R., Subakti, A., & Jalmo, T. (2018). Hubungan Antara Pengetahuan Pencemaran Lingkungan Dengan Sikap Peduli Lingkungan. *Jurnal Bioterdidik: Wahana ...*, 6(2). <http://jurnal.fkip.unila.ac.id/index.php/JBT/article/view/15062%0Ahttp://jurnal.fkip.unila.ac.id/index.php/JBT/article/download/15062/10968>
- Suharsimi Arikunto. (2016). *Prosedur Penelitian Suatu Pendekatan Praktik* (R. Cipta (ed.); XI). 2016.
- Susilawati, Aznam, N., Paidi, & Irwanto, I. (2021). Socio-scientific issues as a vehicle to promote soft skills and environmental awareness. *European Journal of Educational Research*, 10(1), 161–174. <https://doi.org/10.12973/EU-JER.10.1.161>
- Warni, K., Wulandari, F., & Sumarli, S. (2022). Analisis Sikap Peduli Lingkungan Siswa Sekolah Dasar. *Jurnal Basicedu*, 6(2), 1645–1651. <https://doi.org/10.31004/basicedu.v6i2.2197>
- Yanti, Y., & Yusliani, E. (2020). Meta-Analisis: Pengaruh Integrasi Pendidikan Lingkungan dalam Pembelajaran IPA Terhadap Sikap Peduli Lingkungan Siswa. *Jurnal Penelitian Dan Pembelajaran Fisika*, 6(1), 9–16.